AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the present application:

Claims 1-31 (**Canceled**)

32. **(Currently Amended)** A method for ~~the treatment of pathological conditions characterized by insufficient or reduced mitochondrial function, wherein the method comprises~~ maintaining intact, restoring, and/or increasing the number of cellular mitochondria in an elderly subject, said method comprising:

administering to ~~a patient in need of such treatment~~ an elderly subject a therapeutically effective amount of a composition comprising, as active ingredients, the following: ~~suitable for maintaining intact and/or restoring and/or increasing the number of cellular mitochondria, wherein said composition comprises, as active ingredients, leucine, or a pharmaceutically acceptable derivative thereof, in combination with at least one of isoleucine and valine, or pharmaceutically acceptable derivatives thereof.~~

(i) branched chain amino acids leucine, isoleucine, valine, and/or pharmaceutically acceptable derivatives thereof;

(ii) lysine and/or a pharmaceutically acceptable derivative thereof; and

(iii) at least one of:

(a) threonine or a pharmaceutically acceptable derivative thereof or

(b) one or more other essential amino acids selected from the group consisting of histidine, methionine, phenylalanine, and tryptophan, or pharmaceutically acceptable derivatives thereof,

whereby the number of cellular mitochondria in the elderly subject is maintained intact, restored, and/or increased.

33. **(New)** The method according to Claim 32, wherein the composition comprises leucine, isoleucine, valine, lysine, and threonine, wherein isoleucine, valine, threonine, and lysine are present in the following molar ratios to leucine:

isoleucine/leucine having a molar ratio from 0.2 to 0.7;

valine/leucine having a molar ratio from 0.2 to 0.7;

threonine/leucine having a molar ratio from 0.15 to 0.50; and

lysine/leucine having a molar ratio from 0.15 to 0.60.

34. **(New)** The method according to Claim 32, wherein the composition comprises leucine, isoleucine, valine, lysine, threonine, histidine, methionine, phenylalanine, and tryptophan, wherein the sum of the amounts in moles of histidine, methionine, phenylalanine, tryptophan, or derivatives thereof, is from 2% to 25% of the sum of the amount in moles of leucine, isoleucine, valine, lysine, and threonine, or derivatives thereof.

35. **(New)** The method according to Claim 32, wherein the composition further comprises, as an active ingredient, at least one of tyrosine and cyst(e)ine, or pharmaceutically acceptable derivatives thereof.

36. **(New)** The method according to Claim 32, wherein the composition further comprises tyrosine or a pharmaceutically acceptable derivative thereof, and wherein the one or more other essential amino acid is phenylalanine or a pharmaceutically acceptable derivative thereof, so that the amount in moles of tyrosine or derivative thereof is from 15% to 50% of the amount in moles of phenylalanine or derivative thereof.

37. **(New)** The method according to Claim 32, wherein the composition further comprises cyst(e)ine or a pharmaceutically acceptable derivative thereof, and wherein the one or more other essential amino acid is methionine or a pharmaceutically acceptable derivative thereof, so that the amount in moles of cyst(e)ine or derivative thereof is at least equal to 100% of the amount in moles of methionine or derivative thereof.

38. **(New)** The method according to Claim 35, wherein the composition further comprises both tyrosine and cyst(e)ine.

39. **(New)** The method according to Claim 34, wherein the sum of the individual amounts in moles of threonine and lysine, or derivatives thereof, is smaller than the sum of the individual amounts in moles of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of the said other essential amino acids, or derivatives thereof, envisaged in the composition.

40. **(New)** The method according to Claim 34, wherein the amount in moles of threonine, or derivative thereof, is smaller than the individual amounts in moles of lysine and of said branched amino acids, or derivatives thereof, but greater than the individual amounts in moles of said other essential amino acids, or derivatives thereof, envisaged in the composition.

41. **(New)** The method according to Claim 34, wherein the amount in moles of lysine, or derivative thereof, is smaller than individual amounts in moles of said branched amino acids, or derivatives thereof, but greater than the individual amounts in moles of said other essential amino acids, or derivatives thereof, envisaged in the composition.

42. **(New)** The method according to Claim 34, wherein

the amount in moles of threonine is smaller than the individual amounts of lysine and of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of said other essential amino acids, or derivative thereof, envisaged in the composition; and

the amount in moles of lysine is smaller than the individual amounts of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of said other essential amino acids, or derivative thereof, envisaged in the composition.

43. **(New)** A method for the treatment of apoptosis of mitochondrial origin in a subject, said method comprising:

administering to a subject a therapeutically effective amount of a composition comprising, as active ingredients, the branched chain amino acids leucine, isoleucine, and valine, or pharmaceutically acceptable derivatives thereof, whereby the subject is treated for apoptosis of mitochondrial origin.

44. **(New)** The method according to Claim 43, wherein the composition further comprises, as an active ingredient, at least one of threonine and lysine, or pharmaceutically acceptable derivatives thereof.

45. **(New)** The method according to Claim 44, wherein the composition further comprises, as an active ingredient, one or more other essential amino acids, or pharmaceutically acceptable derivatives thereof, selected from the group consisting of histidine, methionine, phenylalanine, and tryptophan.

46. **(New)** The method according to Claim 45, wherein the composition further comprises, as an active ingredient, at least one of tyrosine and cyst(e)ine, or pharmaceutically acceptable derivatives thereof.

47. **(New)** The method according to Claim 43, wherein the composition further comprises threonine and lysine, or pharmaceutically acceptable derivatives thereof.

48. **(New)** The method according to Claim 47, wherein the composition further comprises histidine, methionine, phenylalanine, and tryptophan, or pharmaceutically acceptable derivatives thereof.

49. **(New)** The method according to Claim 48, wherein the composition comprises further comprises tyrosine and cyst(e)ine, or pharmaceutically acceptable derivatives thereof.

50. **(New)** The method according to Claim 43, wherein the composition comprises leucine, isoleucine, valine, lysine, and threonine, wherein isoleucine, valine, threonine, and lysine are present in the following molar ratios to leucine:

isoleucine/leucine having a molar ratio from 0.2 to 0.7;

valine/leucine having a molar ratio from 0.2 to 0.7;

threonine/leucine having a molar ratio from 0.15 to 0.50; and

lysine/leucine having a molar ratio from 0.15 to 0.60.

51. **(New)** The method according to Claim 43, wherein the composition comprises leucine, isoleucine, valine, lysine, threonine, histidine, methionine, phenylalanine, and tryptophan, wherein the sum of the amounts in moles of histidine, methionine, phenylalanine, tryptophan, or derivatives thereof, is from 2% to 25% of the sum of the amount in moles of leucine, isoleucine, valine, lysine, and threonine, or derivatives thereof.

52. **(New)** The method according to Claim 45, wherein the sum of the individual amounts in moles of threonine and lysine, or derivatives thereof, is smaller than the sum of the individual amounts in moles of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of the said other essential amino acids, or derivatives thereof, envisaged in the composition.

53. **(New)** The method according to Claim 45, wherein

the amount in moles of threonine is smaller than the individual amounts of lysine and of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of said other essential amino acids, or derivative thereof, envisaged in the composition; and

the amount in moles of lysine is smaller than the individual amounts of said branched amino acids, or derivatives thereof, but greater than the sum of the individual amounts in moles of said other essential amino acids, or derivative thereof, envisaged in the composition.